

IN THE DRAWINGS:

Submitted herewith is a replacement sheet of drawing
for Fig. 5 on which has been added the legend PRIOR ART.

ADDITIONAL FEE:

No additional fee is believed required in connection with this response. However, should it be determined that a fee is due, authorization is hereby given to charge any such fee to our Deposit Account No. 01-0268.

REMARKS

In the last Office Action, claim 1 was rejected under 35 U.S.C. §102(b) as being anticipated by US 2001/0001273 to Mori et al. ("Mori"), and claims 2-3 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mori in view of US 4,763,031 to Wang. The drawings were objected to because Fig. 5 should be labeled "Prior Art", and the title was objected to as being insufficiently descriptive, and the Examiner suggested an appropriate title.

In accordance with this response, claims 1-3 have been amended and new claims 6-15 have been added. The title has been changed to the one suggested by the Examiner, and Fig. 5 of the drawings has been corrected to add the legend PRIOR ART. The specification has been revised in editorial and grammatical respects and to correct informalities and provide an antecedent basis for the claim language.

The present invention relates to a printer having a platen roller, a print head and a drive unit all mounted on a main frame.

Figs. 3-4 illustrate one exemplary embodiment of a drive unit according to the present invention. The drive unit comprises a rotary motor 21, idler gears 23,24 for transmitting the rotational force outputted by the motor to the platen roller, and a gear fitting member, or support member, 22 integrally formed with gear support shafts 22a,22b that support the idler

gears 23,24. When the drive unit is assembled, a drive gear 21a of the motor and the idler gears 23,24 are disposed in a space defined by the gear fitting member 22 and one of the side walls of the main frame (shown in Figs. 1-2).

According to one feature of the invention, the drive unit is preassembled prior to mounting to the main frame. The gear fitting member 22 is preferably a die-cast structure formed of an alloy material, such as a zinc alloy, a magnesium alloy or a titanium alloy. According to another feature of the invention, the motor 21 is attached to the gear fitting member 22 through a flange member 25 of the motor, and the flange member 25 is provided with an opening in the form of an engagement groove 25a in which is fitted the distal end of the gear support shaft 22b. This combination of features result in improved accuracy of assembly of the drive unit, elimination of inter-shaft variation between the gear support shafts, down-sizing of the drive unit with efficient dissipation of heat energy, a reduction in the number of parts, and other advantages as described, for example, in paragraphs [0025]-[0028].

Claims 1-3, as amended, and new claims 7-15 patentably distinguish over Mori in combination with Wang.

Mori relates to a printer having a platen roller, a print head and a drive unit mounted on a main frame. However, the drive unit of Mori differs from the drive unit of the present invention in significant respects. As illustrated in Fig. 4 of

Mori, the drive unit comprises a box (gear fitting member) 92 integrally formed with gear support shafts 90,91 that support idler gears 93,94. The box 92 is mounted to the outboard side of a side plate 61 of a main body 60. A motor 72 is mounted within the main frame 60 between the side plates 61 and 62, and the drive gear 72a of the motor 72 projects completely through an opening in the side plate 62 to the outport side thereof and meshes with the idler gear 93 [0066] and [0080]-[0081]. Since the drive gear 72a must be inserted through an opening in the side plate 62 to mesh with the idler gear 93 on the outport side of the side plate, the motor 72 cannot be preassembled with the box 92 as a preassembled unit prior to mounting to the main frame 60.

Independent claim 1 specifies that the motor and idler gears are capable of being mounted in the main frame while attached to the gear fitting member. By contrast, in Mori, the motor 72 cannot be mounted in the main frame 60 while attached to the box 92; instead, the motor and the box must be separately mounted to the main frame to enable the drive gear 72a to be inserted through the opening in the side plate 62 to mesh with the idler gear 93.

Claim 1 further specifies that the motor is attached through a flange member to the gear fitting member, and an engagement groove that is fitted in the distal end of one of the gear support shafts is formed in the flange member. No such structure is disclosed by Mori. In the reference, the gear

support shafts 90,91 are completely enclosed by the idler gears 93,94, and neither of the gear support shafts engages with a groove in a flange member of the motor 72.

The secondary reference to Wang has been cited for its teaching of making a gearbox by die casting zinc alloy, and the reference does not cure the above-noted deficiencies of Mori. Thus independent claim 1 patentably distinguishes over Mori in combination with Wang.

Independent claim 7 relates to a printer having a main frame, a platen roller rotatably supported by side walls of the main frame, a print head disposed opposite the platen roller, and a preassembled drive unit mounted in a preassembled state to one side wall of the main frame for rotationally driving the platen roller. Claim 1 further specifies that the preassembled drive unit comprises a support member integrally formed with gear support shafts, a rotary motor supported by the support member and having a drive gear, and idler gears rotatably mounted on respective gear support shafts for transmitting rotational movement of the drive gear to the platen roller. No similar printer is disclosed by Mori in combination with Wang.

As noted above, Mori does not disclose a preassembled drive unit as recited in claim 7. To the contrary, in the reference, the support member (box) 92 must be mounted to the main frame 60 separately from the mounting of the motor 72 to the main frame, and the box 62 and motor 72 are not mounted in a

preassembled state to a side wall of the main frame, as required by claim 7. Wang does not cure the shortcomings of Mori with respect to claim 7 and, therefore, the claim patentably distinguishes over Mori in combination with Wang.

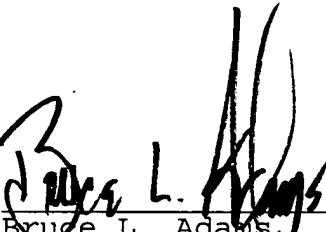
Dependent claim 8 recites that the rotary motor has a connecting flange by which the rotary motor is connected to the support member, and the connecting flange has an opening in which is fitted a distal end of one of the gear support shafts. No such structure is disclosed or suggested by Mori in combination with Wang.

The remaining references have been considered but it is not seen where these references, whether considered alone or in combination with any of the other references, would have suggested to one of ordinary skill in the art be claimed subject matter.

In view of the foregoing, the application is now believed to be in allowable form. Accordingly, favorable reconsideration and passage of the application to issue are respectfully requested.

Respectfully submitted,

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MAILING CERTIFICATE

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date indicated below.

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Name

Signature

MARCH 29, 2010

Date